PROJECT LEADER'S SECTION

NARRATIVE REPORT
MARK TWAIN NATIONAL WILDLIFE REFUGE
FISCAL YEAR 1974

WAPELLO DISTRICT

LOUISA DIVISION
BIG TIMBER DIVISION
KEITHSBURG DIVISION

QUINCY OFFICE

GARDNER DIVISION

ANNADA DISTRICT

DELAIR DIVISION
CANNON DIVISION

BRUSSELS DISTRICT

BATCHTOWN DIVISION
CALHOUN DIVISION
GILBERT LAKE DIVISION

HAVANA DISTRICT

CHAUTAUQUA DIVISION
CAMERON DIVISION
MEREDOSIA DIVISION

DEPARTMENT OF THE INTERIOR
UNITED STATES FISH AND WILDLIFE SERVICE
MARK TWAIN NATIONAL WILDLIFE REFUGE
QUINCY, ILLINOIS

FISCAL YEAR 1974

REFUGE STAFF

HOWARD A. LIPKE - REFUGE MANAGER. . . . . .QUINCY, ILLINOIS
EOD - JUNE 1974

LESLIE F. BEATY - REFUGE MANAGER. . . . . .QUINCY, ILLINOIS
TRANSFERRED - MARCH 1974

GERALD E. CUMMINGS - BIOLOGIST. . . . . .QUINCY, ILLINOIS

MERLE E. AUSTIN - BIOLOGICAL TECHNICIAN . . . . . .QUINCY, ILLINOIS

SHIRLEY M. HAM - ADMINISTRATIVE ASSISTANT . . . . .QUINCY, ILLINOIS

MARCIA A. PIEPER - CLERK-TYPIST . . . . . .QUINCY, ILLINOIS
EOD - JULY 1973

GERALD B. GILL - REFUGE MANAGER . . . . . WAPELLO, IOWA

ALEXANDER B. MCNEIL - MAINTENANCEMAN. . . . . WAPELLO, IOWA

DON E. ADAMS - REFUGE MANAGER . . . . . .ANNADA, MISSOURI

JOHN D. ALLAN - MAINTENANCEMAN. . . . . .ANNADA, MISSOURI

WILLIS D. VASSE - REFUGE MANAGER. . . . . BRUSSELS, ILLINOIS
TRANSFERRED - JUNE 1974

EUGENE A. SIMON - MAINTENANCEMAN. . . . . BRUSSELS, ILLINOIS

JOHN E. TOLL - REFUGE MANAGER . . . . . HAVANA, ILLINOIS

CHARLES W. WATTS - MAINTENANCEMAN . . . . . HAVANA, ILLINOIS

ALICE L. CLANIN - CLERK-STENO . . . . . HAVANA, ILLINOIS

ROBERT E. KARRICK - LABORER . . . . . HAVANA, ILLINOIS
TEMPORARY - JUNE TO SEPTEMBER 1974

KENNETH R. WALKER - MAINTENANCEMAN. . . . . HAVANA, ILLINOIS
TEMPORARY - JUNE TO SEPTEMBER 1974

GEOFFREY T. SLAGH - BIOLOGICAL AID. . . . . QUINCY, ILLINOIS
TEMPORARY - JUNE TO SEPTEMBER 1974

INTRODUCTION

Mark Twain Refuge, with its administrative center in Quincy, Illinois, encompasses twelve divisions within five field District Offices. Two of the divisions, Chautauqua and Clarence Cannon, have had their beginning as individual National Wildlife Refuge units. Information on activities for the Mark Twain is summarized in this section. Details for various divisions are found in District reports maintained at individual field offices.

I. GENERAL

A. WEATHER

Weather conditions for the fiscal year were generally wetter than normal with two districts reporting five and nine inches above normal precipitation. Annada reported over 45 inches which was more than nine above the 38-year average.

Delayed planting of crops shortened the growing season, then was followed by abnormally high fall rainfall which hampered harvest throughout this part of the Midwest. Earlier light frosts were followed by killing frosts in early November, November 3 at Annada, a mid-longitudinal division of the Mark Twain.

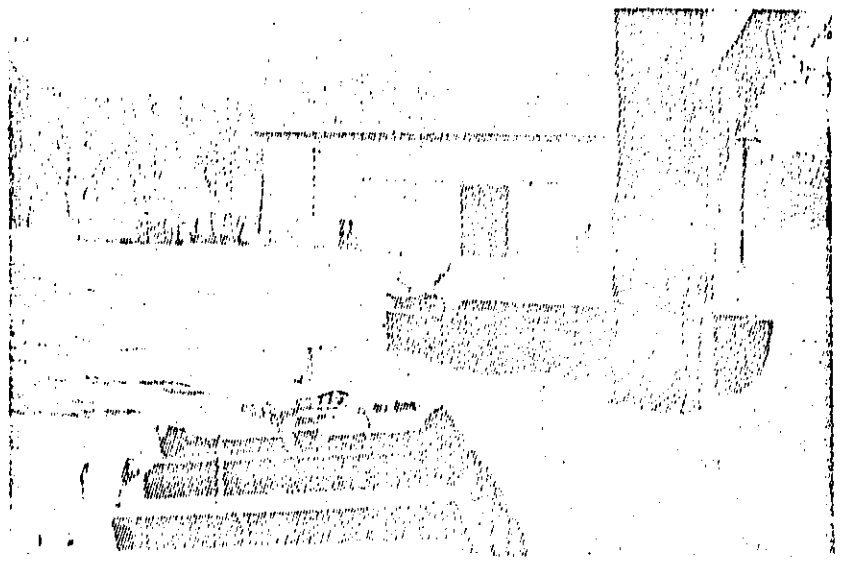
Heavy snows were recorded in December and January, remaining for an unusually long time due to colder temperatures. Nearly 30 inches were reported for Brussels, the third highest two-month total for that weather station in 100 years. Thawing caused some flooding problems before sleet and freezing rain dominated the weather picture.

A cold-snap with temperatures reaching 10 degrees on March 24, at Quincy put a stop to most of the fruit crop in the area. Later heavy spring rains were adding to the already present river flooding conditions.

B. HABITAT

To properly convey conditions affecting operations in Fiscal Year 1974 some discussion of flooding during the spring of calendar year 1973 is

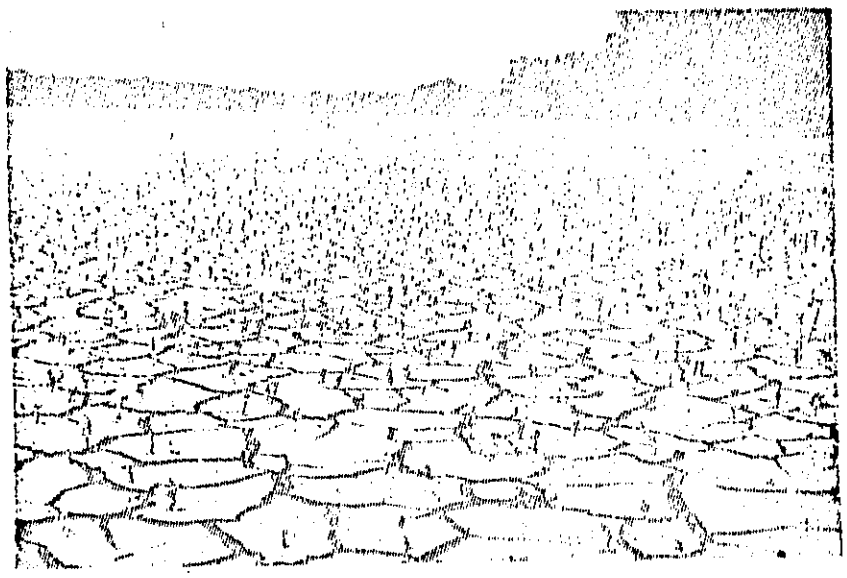
presented. Major flooding occurred on all divisions of the Mark Twain in one of the worst floods in many years. Only Delair's levee of the four protected divisions (Louisa, Cannon, Delair, and Chautauqua) prevented major damages from river action.



FLOODED BRUSSELS HEADQUARTERS TYPIFIED CONDITION OF HABITAT THROUGHOUT MISSISSIPPI AND ILLINOIS RIVER FLOODPLAINS. R-573, F-21 MDV

Brussels District was at flood stage for 100 consecutive days with a crest, on April 28, 1973, one foot higher than the 1844 record. Gardner was affected 93 days at flood stage with a crest 17 feet above (28.89 feet Quincy reading) normal pool. Damage was substantial but less than expected.

Cropland productivity on most divisions was impaired because of severe excellent supplies of natural moist soil plant foods, much declined on cropland not cultivated due to floods.



FLOODS, SILT, LATE DRYING ALL HAD AFFECT ON CROPLAND AND HABITAT. AERIAL SEEDED SOYBEANS WERE ON GARDNER. R-379, F-0 IRA

The lower portion of Chautauqua Lake had an estimated 148 acres of exposed mudflats which were dry for the first time in forty years. Natural foods produced there and generally throughout the Illinois River Valley were above average. Moist soil plants on developed units of Calhoun and Cannon produced well and were fall-flooded. Remaining natural food sources were available, dependent upon river levels, mostly during the following spring.

What winter wheat and corn occurred in croplands was unavailable during heavy snows in December and early January. Subsequent sleet and freezing rains contributed to deteriorating habitat conditions which led to the second consecutive serious spring flooding period. Prolonged flooding prevented cropland activity on all Mark Twain Divisions prior to the close of the fiscal year.

II. WILDLIFE

A. MIGRATORY BIRDS

1. DUCKS

From low population levels during the summer production period duck buildups varied for Mark Twain Divisions which cover a spread of 250 miles, north-south. Significant increases occurred through the month of October with the peak occurring in November. Mallards which comprised 71 percent of the annual use peaked in November at 262,300. The largest concentration on a single unit was 100,000 at Chautauqua in December.

In most years some ducks will winter on units of Annada and Brussels Districts. Heavy December and January snows placed unusual stress on reduced numbers using Gilbert Lake, Delair, and Cannon Divisions. Spring migrants peaked during March.

Total use-days for Fiscal Year 1974 were 12,725,730 following a gradual downward trend of recent years (Graph No. 1). Nearly nine million or 71 percent of the total use-days were by mallards. Wood duck and pintail accounted for 5.4 percent and 4.3 percent, respectively.

The fall migration period accounted for the majority of total use-days. Chautauqua and Louisa contributed more than 42 percent of the annual use, about 2.7 million for each area.

Duck production of 3,060 was mostly wood duck with 2,410 young produced. The remainder was comprised of 615 mallard, 20 pintail, and 15 blue-winged teal.

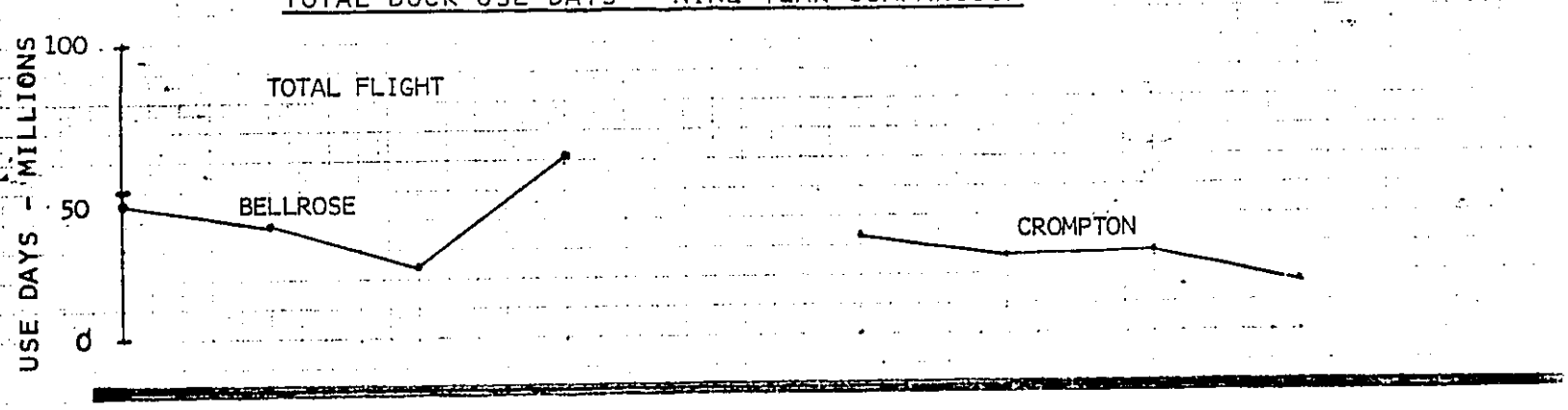
2. GEESE

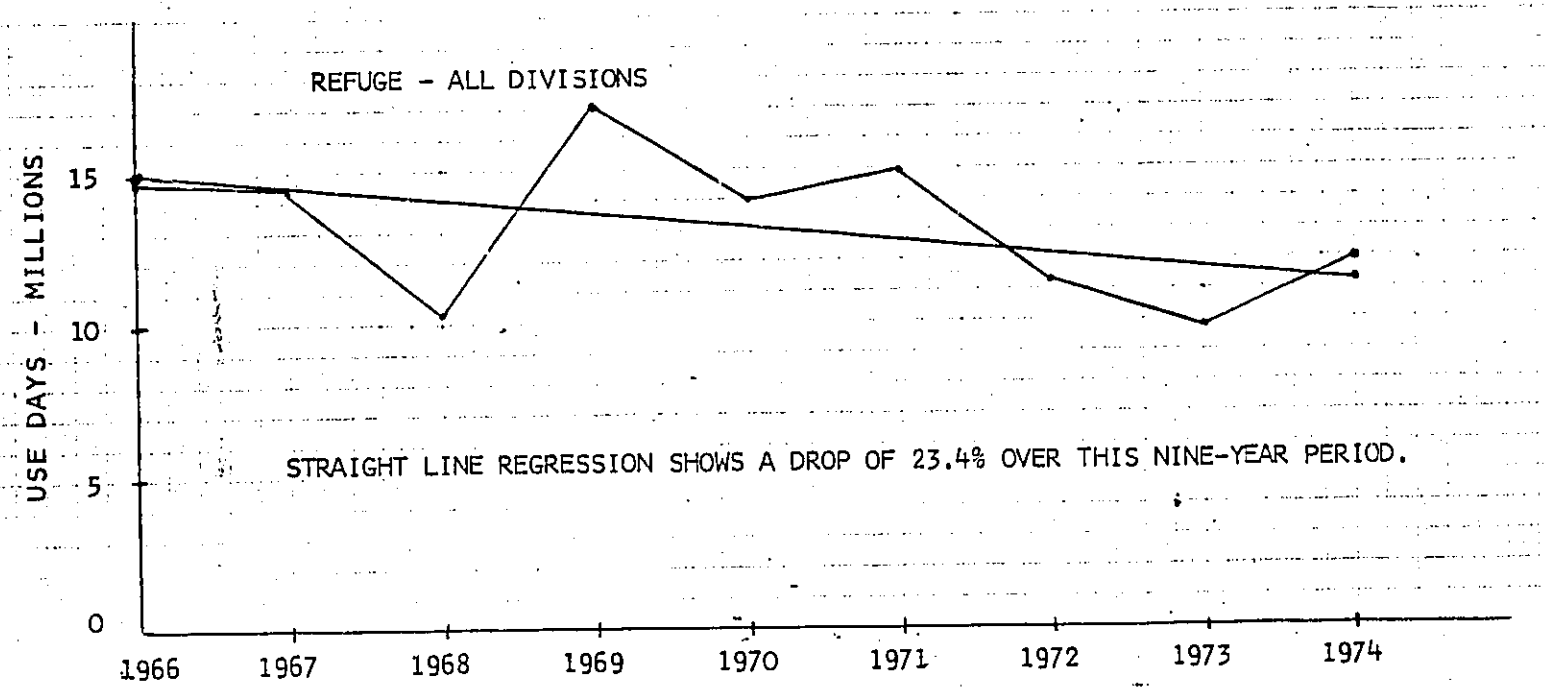
Total goose use for all divisions of the Mark Twain was 1,576,440 use-days. Snow geese accounted for 71 percent or 1,117,680 use-days with Calhoun and Chautauqua contributing 315 and 273 thousand, respectively. A peak number of 28,000 snows occurred in November but the single unit peak was reported in December on Calhoun.

Fall peaks of 1,800 and 1,000 Canada geese occurred in October and

GRAPH NO. I

TOTAL DUCK USE DAYS - NINE YEAR COMPARISON





November on Louisa and Gilbert Lake Divisions. However, February was the month of greatest use as five divisions reported peaks between 1,000 and 4,700 birds, the latter occurring on Chautauqua. Principal use areas were Louisa with 129,450 use-days and Gilbert Lake with 71,430.

3. SPECIAL RECOGNITION SPECIES

This section includes categories of Marsh and Water Birds; Shorebirds, Gulls, and Terns; Doves; and Eagles, Hawks, and Owls for the purpose of reporting total Special Recognition Species use. Total use for all species during Fiscal Year 1974 was 6,748,475 use-days. Chautauqua accounted for 27.5 percent, largely the result of increased summer shorebird use.

MARSH AND WATER BIRDS: Coot activity resulted in 416,760 use-days on all divisions of the Mark Twain. Pied-billed grebe, great blue heron and common egret are the most common and widespread of other birds in this category. Respective total use-days for each was 17,104; 40,504; and 45,342.

The largest concentration on an individual division was 150 for pied-billed grebes and great blue herons and 200 for egrets. Most other species common to the area were reported, but not unusual.

SHOREBIRDS: The usual diversity of shorebirds was present on divisions of the Mark Twain in Fiscal Year 1974. Two species, avocet and buff-breasted sandpiper, were added to Chautauqua's bird list, undoubtedly due to its increased attractiveness to shorebirds. Chautauqua reported nearly 1.5 million use-days by shorebirds, almost one-fourth of Mark Twain's total recognition species use. At one time 200,000 shorebirds were estimated using exposed mudflats and shoreline of Chautauqua Lake. Pectoral and stilt sandpipers, lesser yellowlegs, and golden plovers provided most of the use.

GULLS AND TERNS: Herring and ring-billed gulls were the most common and accounted for substantial use. The peak number of ring-billed gulls was 1,500 on Calhoun and total use-days for the Mark Twain was 323,825.

Two other gulls and five species of terns, including the least tern, were reported.

DOVES: Mourning doves were present on all divisions in usual numbers except Gardner, and the three Brussels' divisions.

B. UPLAND GAME BIRDS

Bob-white quail and pheasant are the two species present, the latter occurring mainly on Chautauqua and Louisa. Except for those divisions quail populations suffered from the record-breaking flood of the spring of 1973. Birds were forced from refuge habitat, most divisions not reporting subsequent observations until fall. Slow recovery is expected due to a second year of prolonged flooding.

C. BIG GAME ANIMALS

Flooding greatly influenced the movement of white-tailed deer on and off most divisions of the Mark Twain. Previously reported population increases for most were "clouded" by frequent movements. Moderate to low numbers are present on all but the Gardner Division.

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Following the 1973 flood the Gardner herd increased to 450, a wintering population. Severe and prolonged spring flooding again dispersed deer off the island and water levels had not receded enough at the close of the fiscal year to encourage movements back.

D. FURBEARERS, PREDATORS, RODENTS, AND OTHER MAMMALS

Two subsequent springs of flooding, one at each end of the fiscal year, has reduced small mammal populations on most districts. Fur animal populations on Gardner were the lowest since the refuge was established in 1958.

Fox squirrel and muskrat accounted for the greatest use on the Mark Twain, the latter with widespread heavy use. More than one hundred thousand use-days were reported for five divisions with Louisa showing highest use and recent population increase. Squirrel use on Gardner, in spite of flooding, remains substantially above all other divisions.

Raccoon use remains significant on all units. Beaver numbers appear to be on the increase at Chautauqua with lodges appearing around the lake.

E. HAWKS, EAGLES, OWLS, AND CROWS

Birds of prey were affected, at least in part, by decreases in small mammal or rodent populations. The most common species present on most divisions included red-tailed hawks and barred owls although the usual diversity occurred. Great horned and screech owls were the other owl species reported.

Bald eagle use remained high with 8,447 use-days recorded for the Mark Twain. The highest concentration occurred on Gardner when 48 were observed on February 10, 1974. Golden eagles were reported on only three divisions.

F. RARE AND ENDANGERED SPECIES

Osprey, a status undetermined species was reported on seven divisions, accounting for 290 use-days. One to three birds were sighted in the observations, the peak occurring on Gardner in April.

G. FISH

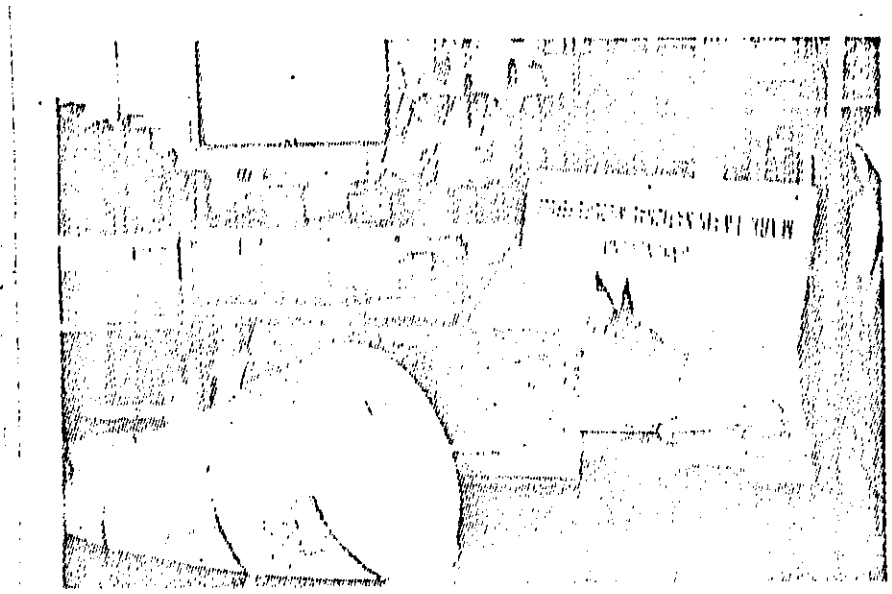
Usual fish diversity and populations occurred as ties to the Mississippi and Illinois Rivers causes substantial interchange of fish during flooding periods. Low water levels in Chautauqua Lake resulted in some fish die-off during the summer, mostly shad.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. PHYSICAL DEVELOPMENT

The spring flood of 1973 set the stage for much of the maintenance activity during Fiscal Year 1974, perhaps illustrated best by the two photos.

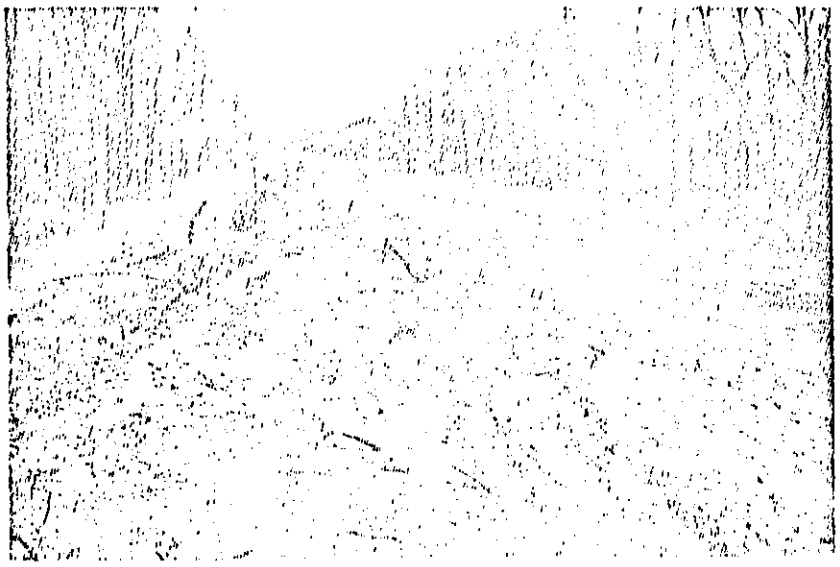
STORAGE FACILITIES ON GARDNER AFTER SOME RECEDING OF FLOOD WATER FOLLOWING RECORD CREST OF 28.89 FEET (QUINCY). R-371, E-18 MEA



FLOOD DAMAGE TO BUILDINGS WAS SIGNIFICANT, AND EQUIPMENT AND SUPPLIES REQUIRED CONSIDERABLE CLEANUP. R-372, 5-9 MFA

Floodwaters covered most refuge lands of the Mark Twain, depositing debris and silt, covering equipment, cutting levees, dikes and roads, and damaging buildings.

Cleanup and repairs were continuing but much still remained at the close of the fiscal year. The Corps of Engineers repaired sixteen breaks in the Cannon levee, the refuge repaired six on the north segment, and the Annada Flood Protection Association completed rehabilitation of one and one-quarter miles of the west levee.



REFUGE REPAIR OF LEVEES WAS REQUIRED BUT WITHOUT CORPS AND PROTECTION ASSOCIATION INVOLVEMENT MUCH WOULD REMAIN. R-241, E-7 GBG

Buildings were renovated at Calhoun, Chautauqua, and Meredosia. Two pair of contract-constructed toilet facilities were completed at Chautauqua. Emphasis on improvement of public river accesses occurred on divisions of the Wapello District.

Boundary posting received attention on Gardner and Meredosia, the latter due to new acquisition. A grassed airstrip was completed on Calhoun.

B. PLANTINGS

3. UPLAND HERBACEOUS PLANTS

Relatively small acreage was planted to upland vegetation. Levee repairs necessitated reseeding, and Reed's canary-grass/rye and Kentucky 31/brome mixtures were used. A test planting of mammoth red clover on 26 acres at Delair was unsuccessful.

A total of 100 trees was planted at Chautauqua as wildlife cover, replacing a previously "manicured" public use area appearance.

4. CULTIVATED CROPS

Flooding prevented usual cropland plantings on some divisions and delayed planting on others so yields were substantially reduced. Significant cropland activities reported on divisions were as follows: Louisa-50 acres, Gardner-734 acres, Delair-128 acres, Cannon-1297 acres, Batchtown-42 acres, Calhoun-297 acres, and Gilbert Lake-95 acres.

Soybeans were planted on a substantial acreage as cooperator shares. Corn, milo, buckwheat, and fall planted wheat were crop types providing wildlife benefits through refuge shares.

A wet fall delayed harvest of low yielding crops. Corn on Delair, Calhoun, and Gilbert Lake provided significant waterfowl food as did wheat browse plantings on most farmed divisions. Aerial seeded wheat in standing soybeans, 246 acres on Calhoun, provided ample fall goose browse.

Prolonged flooding during the spring of 1974 prevented any cultivation or cropland planting as of the close of the fiscal year.

D. CONTROL OF VEGETATION

Cooperative farmers used approved herbicides during reduced chemical control activity on refuge croplands. Flooding with resulting late planting made this a high-risk year and high cost chemicals could not be justified.

Most roadside and levee brush control was mechanical (mowing) except 2,4-D spraying of 4.3 miles of the Cannon levee. Corps of Engineers pressures for certain levee maintenance standards required spraying.

Mechanical control was required for Johnson grass problems of the Brussels District.

E. PLANNED BURNING

Six miles of the Cannon levee were burned for brush control and stimulation of prairie cordgrass for erosion control benefits.

IV. RESOURCE MANAGEMENT

E. COMMERCIAL FISHING

Last year Lake Odessa of the Louisa Division was opened to commercial fishing. Fishing resulted in minimum problems and conflict, hence eleven permits were issued this year. Harvest by six permittees of the eight that fished Louisa amounted to fourteen ton of rough fish, 11.5 ton of buffalo.

Commercial fishing was not permitted on the remainder of Mark Twain Districts.

F. ANIMAL CONTROL

Groundhog control on the Cannon levee was accomplished using gas cartridges.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. BANDING

1. WATERFOWL

There were no waterfowl banding efforts attempted solely by refuge personnel. A wood duck banding quota for Chautauqua has been accomplished by the Illinois Natural History Survey in recent years.

The Iowa Conservation Commission has expressed their need for a three-year Canada goose banding program. Cooperation with the Iowa Conservation Commission resulted in the initiation of banding on Louisa Division which yielded 61 banded geese.

2. MOURNING DOVE

Cannon was to band 300 doves as part of the Missouri quota; however, no attempt was made due to prolonged flooding and personnel changes. Delayed receipt of banding quotas resulted in 83 banded doves in Illinois (Gardner) before traps were shut down. No recent band recovery summaries have been made.

VI. PUBLIC RELATIONS

A. RECREATIONAL USES

Total visits to the Mark Twain in Fiscal Year 1974 were 161,789, resulting in 364,600 activity hours of recreation. Floods hampered use of some divisions, notably Cannon, but use was generally widespread. Chautauqua alone accounted for 65 percent of the total visits and 61 percent of activity hours. The more than 105,000 visits were up from 90,000 of a year ago.

Fishing remains as the main recreational pursuit on many of Mark Twain's divisions. Forty-seven percent of the total visits and 66 percent of the activity hours was for fishing. More than half of Chautauqua's visits and three-fourths of the activity hours were reported for that output; however, loss of levees and siltation will likely cause declines in future fishing activity.

Wildlife observation, principally on-foot, was the second leading recreational activity. Nearly 54,000 visits or 34 percent of the Mark Twain total was for observation but only 14 percent of activity hours were contributed. Chautauqua accounted for nearly 46,000 of the visits but important observation contributions resulted from Louisa and Gilbert Lake opportunities.

A UMRCC-generated Pool 21 Recreational Use Survey was conducted during Fiscal Year 1974 which is expected to provide insight into reporting and projecting Mississippi River pool recreational potential. This particular survey encompassed the Gardner Division and involved substantial input by Biological Technician, Merle Austin. The project was completed August 31, 1974, and a report is forthcoming.

B. REFUGE VISITORS

Visitors included the usual official U.S. Fish and Wildlife Service personnel, local, State and Federal cooperating agencies, and a long list of unofficial ones.

A representative of the Australian Fish and Wildlife Division made a visit to Chautauqua during the year.

C. PARTICIPATION

Nearly thirty slide and movie presentations and refuge tours were provided to interest groups. Additional environmental education involvement occurred, particularly by the Havana District where nearly 1,000 people were reached through workshops and lectures. This program was expanded to include environmental education use of Brussels, and a presentation to Louisa County Education Council.

Changes in responsibility at the Havana District office permitted expanded involvements in environmental education. Accomplishments included: contribution as task force member to draft Illinois Environmental Education Plan; Western Illinois University lectures; development of Havana Pilot Environmental Education Program; Environmental Association of Illinois involvements; and committee contribution to Environmental Education teacher certification standards.

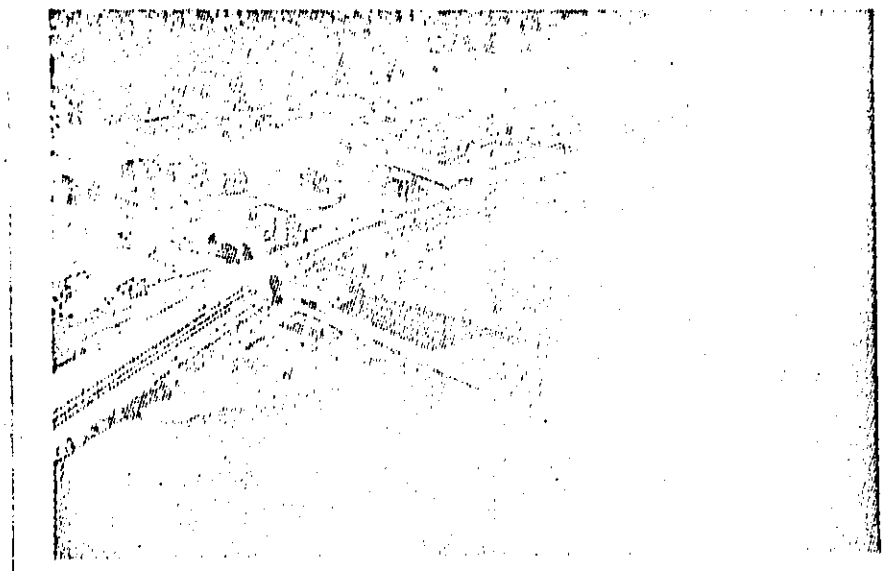
News releases and radio and television involvements conveyed pertinent and important refuge happenings on a dozen occasions.

More than thirty meetings were attended during the year to achieve coordination of cooperative activities. Some of those involved participation involving key river resource management and protection activity.

GP LANDS: The year marked a beginning of increased interest and involvement in Corps of Engineers General Plan Lands. The U. S. Fish and Wildlife Service (Mark Twain) as second party cooperators have the responsibility of overseeing management of certain Corps lands (GP) through cooperative agreements with the States of Iowa, Illinois, and Missouri. Improved management criteria will result.

CORPS ACTIVITY: A continuing need for Corps of Engineers navigational channel maintenance and flood protection activity has and will continue to require refuge involvement. Aerial inspections of dredge spoil sites on the Mississippi River were completed.

POLLUTION MONITORING: Under National and Regional needs for action under Oil and Hazardous Material Pollution Contingency Plans the Mark Twain has and will respond as required. Industrial and power developments, and heavy navigational barge traffic on the Mississippi and Illinois Rivers requires continuing surveillance and effective emergency responses when spills occur.



THIS INDUSTRIAL SPILL NEAR PORT MADISON, IOWA TURNED OUT TO BE DYE BUT OIL AND CHEMICAL THREATS ALWAYS PRESENT. R-1/0, F-15 MFA

Acquisition: Acquisition referrals and needs for the addition of lands to the Refuge System were handled and coordinated with other Fish and Wildlife Service Divisions. Reviews and recommendations were made on a Duck Island Club on the Illinois River, and a proposal for establishment of the Peabody National Wildlife Refuge in Pool 19, a key canvasback area.

Brussels District Manager Dick Vasse was on special assignment through the Office of Migratory Bird Management to conduct breeding ground transects in the Dakotas and Montana.

D. HUNTING

Big Timber and Chautauqua were the only two divisions open for waterfowl hunting, with only 700 acres of the latter available to waterfowlers. Water access holds hunter pressure at desirable levels and hunting quality remains good. An estimated 584 hunter trips produced 209 ducks.

Turkey and Otter Islands along with the Big Timber Division of the Wapello District provided nearly 2500 waterfowl visits and 9500 hours of recreational opportunity. Iowa hunted under a split season (1973-1974) and early duck success was fair, turning to poor later in the season.

On-refuge hunting contributes only one percent of the total Mark Twain recreational visits and three percent of the activity hours. This occurs from the waterfowl hunting above and some deer and squirrel hunting on a few of the divisions. Only 255 visits were reported as no Gardner deer or squirrel hunting was allowed this year.

Waterfowl hunting on lands surrounding refuge units provides significant indirect recreational benefits. Goose hunting in the area of Louisa was greatly improved but a potential for boundary or "line" hunting exists. In the Brussels District, hunting on State administered General Plan Lands was poor. Calhoun Point and Batchtown areas attracted about 6500 hunters that took .59 and .70 ducks per hunter, respectively. Comments from interests up and down the Mississippi and Illinois Rivers were that the 1973-1974 season was generally disappointing.

E. VIOLATIONS

Hunting essentially on only two divisions limited violations observed on refuge units. Assistance was provided to Iowa Conservation Commission officers and two state citations were taken through court. At Havana, two hunters forfeited $300 bond for possession of wood ducks during the special teal season.

Illinois Department of Conservation personnel apprehended three men cutting firewood on Gilbert Lake, each forfeited $35 bonds.

A shattered Brussels' pickup windshield was replaced by a group of young people apprehended after throwing an object through it.

F. SAFETY

Refuge Safety meetings were held at monthly staff meetings in the Quincy Headquarters Office. District field-staff discussions on matters of Safety, and provision of Safety equipment and protection occurred on a continuing basis.

Chautauqua, just recently incorporated into the Mark Twain "Complex", had accumulated nearly 8000 days of accident-free work. Mark Twain's Safety record as of July 1, 1974, was 11,400 hours without a lost-time accident.

VII. OTHER ITEMS

A. TRAINING

Maintenancemen John Allan and Alexander McNeil attended a Sewage Lagoon Operations and Maintenance Training Session at Jefferson City, Missouri.

Wapello District Manager Gerald Gill attended the Service's Law Enforcement Workshop.

B. ITEMS OF INTEREST

Fiscal Year 1974 marked the first year of administration of Meredosia following the 1,850 acre Jim Anderson gift and clear title in May 1973. Meredosia was, along with Chautauqua National Wildlife Refuge and Cameron, incorporated into the Havana District of the expanded Mark Twain "Complex".

The condemnation trial for resolving ownership and compensation on levees and ditch right-of-ways on Cannon has been further delayed. At the close of the fiscal year a fall trial date was anticipated.

Melz Slough, a 95-acre Illinois River bottomland timber-type, was approved as a Public Use Natural Area in March 1974. A second area, Rountree Research Natural Area, was facing road development threats and an environmental assessment was completed for Illinois State Highway Department EIS needs. Both areas are located on Chautauqua.

Years of Illinois Natural History Survey and refuge waterfowl census data has been transferred to magnetic tape. Analysis of this and other Mark Twain data will aid in current waterfowl objective and land use reviews for future program re-direction.

Payments to counties from distribution of Refuge System receipts under P.L. 88-523 totalled $23,105.98.

Five personnel actions took place during the fiscal year. Leslie F. Beaty transferred to the Minneapolis Regional Office in March and, after a four-month vacancy, the manager's position was filled by Howard A. Lipke of the Klamath Basin National Wildlife Refuge, California.

Marcia A. Pieper was appointed as clerk-typist at the Quincy office

beginning in July. Her 24-hour a week appointment permits continuation of her education at Quincy College.

District Manager Dick Vasse, after more than eleven years at Brussels, transferred to Agassiz National Wildlife Refuge, Minnesota as assistant there.

After a very short tenure Lozelle VanDeventer, Biological Aid, at Meredosia resigned from his custodial responsibilities. He and his wife have lifetime occupancy privileges of the residence at Meredosia.

Personnel awards and recognition were as follows: Don Adams received a citation for Outstanding Performance and a Special Achievement Award; Alexander B. McNeil and Shirley Ham both received 10-year Service Pins.

SIGNATURE PAGE

FISCAL YEAR 1974

Submitted by:

Howard A. Lipke
(Signature)
HOWARD A. LIPKE

Date: MARCH 24, 1975

REFUGE MANAGER
Title

Approved, Regional Office:

Date: _____

_____
(Signature)

Regional Refuge Supervisor

R3-454
(9/68)

HAVANA DISTRICT

NARRATIVE REPORT

MARK TWAIN NATIONAL WILDLIFE REFUGE

HAVANA DISTRICT

FISCAL YEAR 1974

DEPARTMENT OF THE INTERIOR

UNITED STATES FISH AND WILDLIFE SERVICE

MARK TWAIN NATIONAL WILDLIFE REFUGE

HAVANA, ILLINOIS

CHAUTAUQUA DIVISION

I. GENERAL

A. WEATHER CONDITIONS

Flood conditions carried over from spring of the previous fiscal year into August. The remainder of 1973 calendar year was extremely dry.

Water started rising in late January from melting snow in the north and was kept at flood stage because of above normal spring rains through June. The cross dike was cut in several places and at one point, to the bottom of the dike.

B. HABITAT CONDITIONS

1. Water - Food and Cover

Water levels were at flood stage through the first part of July. It was not until late August that water levels were low enough to expose mudflats in the lower pool. Even at this late date, an estimated 145 acres of choice moist soil plants (chufa, love grass, pigweed, cupplant, rice cut-grass and bidens) grew on the exposed flats. This was the first time these flats had been exposed in over forty years.

Grain fiels off the refuge had a minimum of waste because dry fall conditions allowed for an early harvest and extensive fall plowing.

Natural food production was above average in flood plains along the Illinois River Valley.

II. WILDLIFE

A. MIGRATORY BIRDS

1. Waterfowl

a. Ducks

The duck migration for the fall of 1973 and the spring of 1974 was normal for the Illinois River Valley as a whole. Total duck use days for Chautauqua was sharply up, however, from 1,000,000 in Fiscal Year 1973 to 3,000,000 in Fiscal Year 1974. Most of this increase occurred in the fall and is attributable to the moist soil plant production and ideal water conditions (6 to 12 inches in depth).

Continued flood conditions in the spring and early summer destroyed about one-half of the early wood duck nesting attempts. Overall production was down from 500 to 325.

b. Geese

Snow geese and Canada geese found the new habitat in the lower pool to their liking. Snow goose use days totalled 90,000 in Fiscal Year 1973 and 270,000 in Fiscal Year 1974. Canada goose use increased from 12,000 use days to 110,000.

c. Coots

Coot followed the increased use pattern of ducks and geese.

2. Other Water Birds

Nothing unusual to report.

3. Shorebirds

Without a doubt, the outstanding wildlife event at Chautauqua was the late summer/fall concentration of birds on mudflats of the lower pool. At one time, 200,000 shorebirds were estimated

to be on the refuge. Birdwatchers came from all over the state and a few from out of state to enjoy this spectacular sight. Shorebird use-days totalled 1,200 in Fiscal Year 1972; 137,000 in Fiscal Year 1973 and 1,469,000 in Fiscal Year 1974. See attached news release.

The avocet and buff-breasted sandpiper were added to the refuge bird list making a total of 247 species.

4. Doves

Normal numbers and reproduction occurred during the Fiscal Year.

B. UPLAND GAME BIRDS

Quail and pheasant numbers and hatch seemed to be average for this year.

C. BIG GAME ANIMALS

One doe and two fawns were seen this year. Tracks are not common.

D. FUR ANIMALS, PREDATORS, RODENTS, AND OTHER MAMMALS

There has been a definite increase in beaver over the past few years. Lodges are common all around the lake. Raccoon populations are down, probably the result of a distemper die-off last year.

Other animals in this category seem to occur in normal numbers, with habitat conditions for them unchanged.

E. HAWKS, EAGLES, OWLS, CROWS, RAVENS, AND MAGPIES

No trends to report.

F. FISH

There was some fish die-off, mostly shad. Loss of the ability to hold water in the lower pool resulted in water depths of less than one foot in the deepest part. Local fishermen felt most of the fish had

TOLL: 309/595-2290

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service Regional Information

FOR IMMEDIATE RELEASE - SEPTEMBER 11, 1973

BUREAU OF SPORT FISHERIES AND WILDLIFE

BIRDS, BIRDS, BIRDS

HAVANA, ILLINOIS: BIRD WATCHERS AND NATURE LOVERS SHOULD GO TO THE CHAUTAUQUA NATIONAL WILDLIFE REFUGE NEAR HAVANA, ILLINOIS IF THEY WANT TO SEE AN UNUSUAL CONCENTRATION OF SHOREBIRDS AND WADERS. ACCORDING TO JACK TOLL, REFUGE MANAGER, A RECENT ESTIMATE PLACED THE POPULATION OF WATERBIRDS AT 200,000.

TOLL ACCOMPANIED BY PAT WARD, PRESIDENT OF THE MORGAN COUNTY AUDUBON SOCIETY, SIGHTED MOST OF THE COMMON SHOREBIRDS EXPECTED THIS TIME OF YEAR AND IN ADDITION SAW AN AVOCET, A BAIRD SANDPIPER, AND SEVERAL BUFF-BREASTED SANDPIPERS.

"WE ALSO HAVE ABOUT 5,000 DUCKS, MOSTLY BLUE-WING AND GREEN-WING TEAL WITH SEVERAL HUNDRED MALLARDS AND WOOD DUCKS", TOLL SAID.

THE UNUSUALLY LARGE NUMBER AND VARIETY OF BIRDS IS CAUSED BY OVER 1,000 ACRES OF MUDFLATS. THE MUDFLATS WERE CREATED BY LOSS OF WATER DUE TO FLOOD DAMAGE TO DIKES THIS SPRING AND EARLY SUMMER.

THE 5,000 ACRE CHAUTAUQUA NATIONAL WILDLIFE REFUGE IS MANAGED BY THE BUREAU OF SPORT FISHERIES AND WILDLIFE, U. S. DEPARTMENT OF THE INTERIOR.

followed the water out as it dropped.

In spite of the low water level in the summer, trot line fishing for channel cat was excellent the following spring. In the upper pool many catches of small bass started to show up in the spring of 1974 - probably from last year's hatch during high waters.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. PHYSICAL DEVELOPMENT

In April of 1973 the Biological Technician postion was eliminated at this refuge. This reduction in force limited most of the following year's work to routine maintenance. Contracts were let and work completed for two sets of restrooms, and insulation and siding of the manager's residence.

B. PLANTINGS

1. Trees and Shrubs

About 100 trees and shrubs were planted around the public use areas for wildlife cover and replacement vegetation for previously mowed grass areas.

C. CONTROL OF VEGETATION

Roadside mowing only.

IV. RESOURCE MANAGEMENT

A. COMMERCIAL FISHING

Due to lack of interest and administrative costs, commercial fishing was eliminated this year. There are no plans to re-establish this program in the foreseeable future.

B. OTHER USES

The local tavern has a special use permit ($10.00/year) that covers a portion of the building that extends onto the refuge. It may or may not be significant that the portion on the refuge is the restroom.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. PROGRESS REPORT

1. Rountree Natural Area

An environmental assessment was completed for a proposed road that would go through the Rountree Research Natural Area. It will be used to respond to an Environmental Impact Statement being developed by the State Highway Department.

2. Heavy Metal Study

Two undergraduate students from Bradley University have completed a study that analyzed the mercury content of fish from Lake Chautauqua. Preliminary results showed acceptable levels. A final report will be completed soon.

3. Melz Slough Natural Area

A study was completed to see if this 95-acre bottomland timber area was suitable for a natural area. It was recommended for a Public Use Natural Area and was approved in March 1974.

VI. PUBLIC RELATIONS

A. RECREATIONAL USES

Recreational use at Chautauqua has steadily increased over the past several years. Visits for Fiscal Year 1974 totalled 105,000. This is up from the Fiscal Year 1973 total of 90,000. Fishing makes up the largest public use accounting for about 55 per cent with wildlife observation being second with about 40 per cent.

With the loss of fishing areas as dikes deteriorate, fishing use will drop. Hopefully, this will be offset by an influx of wildlife observers as habitat conditions change in favor of waterfowl and waterfowl.

B. REFUGE VISITORS

Refuge visitors came from all over the United States. In addition, we had one visitor, Dan Norman, from the Fish and Wildlife Division of Australia.

C. REFUGE PARTICIPATION

Refuge personnel talked and met with a variety of clubs and schools. Nineteen group contacts were made with just under 1,000 individuals.

Maintenanceman Watts is Vice-president of the Mason County Fire Fighters Association, Chaplain of the VFW, and Vice-president of the Havana Firemen's Association.

D. HUNTING

Refuge hunting is limited to 700 acres open for waterfowl only. Hunters made 584 trips and killed 209 ducks. Access is by water only,which limits the number of hunters and results in a quality hunting experience.

Hunting on private land near the refuge was considered fair for the year.

E. VIOLATIONS

Lack of personnel has drastically curtailed enforcement efforts. Two individuals were picked up in the public hunting area during the teal season with four wood ducks. They forfeited federal bonds of $300.00.

F. SAFETY

Safety meetings were held at the Quincy Office on a regular basis. This station has gone nearly 8,000 days without a lost time accident.

VII. ENVIRONMENTAL EDUCATION

The Environmental Education efforts of the past two years have resulted in an ever increasing involvement by the refuge. However, with the decrease in manpower, the Environmental Education program was for the most part phased out by the end of Fiscal Year 1974.

The following is a listing of the accomplishments of Fiscal Year 1974:

1. State of Illinois Environmental Education Plan

The refuge manager has been one of the 26 Task Force members for the past two years. In November 1973, the draft form of the "State Plan" was submitted to the State Superintendent of Schools.

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Several lectures on Environmental Education and environmental problems were given to students at Western Illinois University. Several meetings were held with faculty at the school discussing ways the University could improve their Environmental Education program. Among other things, the Havana Pilot Program evolved out of these meetings.

In the fall of 1973, the refuge manager was offered and accepted an appointment as adjunct instructor. Since that time, he attends and participates in monthly faculty meetings.

3. Havana Pilot Program

In the early part of 1973, a series of meetings were held with various professors and deans from Western Illinois University and representatives from Office of the Superintendent of Public Instruction and the U. S. Fish and Wildlife Service to determine how best to develop an Environmental Education program. After several meetings, it was determined to develop a Pilot Environmental Education program in one of the local school districts. Mr. Toll and Dr. Kellogg conducted a survey of several schools in the area and selected the Havana School District because of their high interest in the program.

A committee was formed that was composed of representatives from Western Illinois University, O.S.P.I., U.S. Fish and Wildlife Service, Administration of the Havana School District, Teaching Staff of the Havana School District, Izaak Walton League, Jaycees, Havana Beautiful, and a school board member. This committee met on a monthly basis to discuss and develop the program for Havana.

At the end of 1973, over half of the teachers in the elementary Havana School System had completed forty hours or more of training in Environmental Education techniques. The Havana Pilot Program has been so successful that the State Director of Environmental Education has requested funds from the Institute for Environmental Quality for documentation that can be used to develop other Environmental Education programs in Illinois.

4. Environmental Association of Illinois

The Environmental Association of Illinois has a membership of 200 plus made up of individuals of various backgrounds with a common interest in promoting Environmental Education. Manager Toll joined the organization early in 1973 and was elected to the Board of Governors in April and at the present time serves as Chairman of the Governing Board of the organization.

5. Teacher Certification Meeting

In October, Manager Toll was appointed by O.S.P.I. to a committee of five individuals to recommend standards for certification in Environmental Education for all Illinois secondary and elementary teachers. Certification recommendations were developed by the committee and submitted to O.S.P.I. for their consideration.

6. Lectures and Workshops

Lectures were given on Environmental Education and general environmental topics at Western Illinois University, Champaign County Audubon Society, Bradley University, Woodruff and Richwoods High Schools in Peoria, and the Morgan County Audubon Society.

Workshops were conducted for: teachers at Minier public schools on school site planning; use of environmental impact statements in teaching Environmental Education at the annual Environmental

Association of Illinois meeting in Springfield; Henry County Conservation Committee on Environmental Education in the Havana Pilot Program. Assistance was also given to Drs. Kellogg and Miller from Western Illinois University during 22 four-hour sessions for teachers in Havana. In addition, the refuge manager participated as a panelist at a workshop conducted by the 4-H Extension Service for Western Illinois at Jacksonville.

Just under 1,000 people were reached in Fiscal Year 1974 through workshops and lectures.

VIII. ITEMS OF INTEREST

This has been the year of change and adjustment for Chautauqua. In April of 1973, the Biological Technician position was discontinued reducing the staff to two full-time men.

In May, the Meredosia National Wildlife Refuge was established when the Nature Conservancy deeded the Anderson Duck Hunting Club to the Service. This almost doubled our responsibility since the workload at Meredosia is nearly as large as Chautauqua.

In July Chautauqua and Meredosia Refuges were placed under the Mark Twain Refuge and became part of that complex. At the same time, the refuge clerk's tour of duty was reduced from three to one day a week.

The assumption is that this re-organization will save money and make a more efficient operation. At any rate, we are still going through the shakedown period trying to make the system work.

During this period the Rountree Research Natural Area was approved. The area is composed of 26 acres of unique upland sand habitat. About 16 acres is virgin oak-hickory timber.

MEREDOSIA ISLAND NATIONAL WILDLIFE REFUGE

(MEREDOSIA DIVISION)

I. GENERAL

A. HISTORY

In the fall of 1971, we were contacted by Mr. Jim Anderson of Chicago. His father had recently died and willed the 1,850 acre Anderson Gun Club to "a" conservation agency. Mr. Anderson asked that we develop a management plan for the area so that he and his mother could decide which conservation agency to give the land to. A plan was developed and sent to Mr. Anderson in early 1972. In May of 1973, we received clear title to the Anderson Gun Club through the Illinois Nature Conservancy.

It was the wish of Jim Anderson and his mother that the area be named "Meredosia Island National Wildlife Refuge." Other conditions that were accepted with the land are:

1. Priority management for waterfowl.
2. No hunting.
3. No economic harvesting of timber.
4. Restrictions on motor vehicle travel, particularly off-road vehicles.
5. The caretaker for the past forty years, L. G. Vandeventer, be allowed to live in the caretaker house for the remainder of his life.

The 1,850 acres is made up of 1,250 acres of bottomland timber, 300 acres of farmland and 300 acres of marsh and water.

An effective moist soil management program has been developed by the club and will continue to operate much the way it has.

The long range plans for the area include the purchase of additional land to bring the total acres to approximately 6,000. When this is completed, a management program will be started. At the present time, because of lack of funds, manpower and poor access, no public use is permitted.

Since operation of Meredosia is on a limited basis, only a few items listed in the Narrative Outline have enough information to report.

B. WEATHER CONDITIONS

Flood conditions remained in July and into August from the previous Fiscal Year. The latter part of August, September, and October were extremely dry. Flood conditions started again in the latter part of January and continued through the report period.

C. HABITAT CONDITIONS

1. Water - Food and Cover

High water levels remained until August preventing a drawdown of the marsh areas on the refuge. Even with this late drawdown, there was some moist soil plant growth in the fall. The moist soil plants were of the same varieties that grew in Chautauqua except there was an abundance of marsh smartweed. The marsh smartweed had but very few seedheads - not an uncommon occurrence according to conversation with L. G. Vandeventer.

What little moist soil plant food did grow remained unavailable to waterfowl because of no way to flood the marsh. The pumping system that came with the refuge was inoperable.

In the spring of 1974, high water conditions flooded the 300 acres of farmland that had produced a good crop of annual weeds such as smartweed, millet, etc. Spring migrating ducks made excellent use of this volunteer food.

II. WILDLIFE

A. MIGRATORY BIRDS

1. Waterfowl

a. Ducks

Duck use-day objectives for Meredosia are established at 2,053,000 based on the 1965-1969 average figures. Use fell far short of this objective during the first year's operation of the refuge with total use-days of 562,000 or about one-fourth of the goal. Lack of water prevented flooding the marshes in the fall. Water was available for flooding in the spring, resulting in almost twice as many use-days as the fall. This is reverse of the normal situation.

b. Geese

The objective for geese at Meredosia is to hold a population just high enough so that wildlife observers have ample opportunity to view them. It seems that this will occur without any special management since geese were present in every month they could be expected.

2. Other Waterbirds

Several species of waterbirds are common at Meredosia in the small marshes and along the edge of the large lake. Lack of manpower plus the difficulty of getting to the area much of the time makes reported numbers shaky at best. For that reason, no attempt is made to discuss trends.

3. Shorebirds

Most of the species that occur at Chautauqua are found at Meredosia but in much smaller numbers.

B. UPLAND GAME BIRDS

Probably because of frequent flooding, neither quail or pheasant were observed on the island.

C. BIG GAME ANIMALS

Deer are common on the refuge. However, frequent and prolonged flooding pushes them to higher ground often so overpopulation will probably never be a problem.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. PHYSICAL DEVELOPMENT

Considerable time was spent locating the boundaries and posting the area. After waters receded in July, the caretaker's residence was reconditioned. Floor coverings were replaced and the interior repainted. Water levels had reached three feet above the floor.

CAMERON DIVISION

I. GENERAL

The Cameron Division is 70 miles from the Chautauqua headquarters. Reduced money and manpower has made it impossible to do more than just check the area a few times a year. Therefore, detailed information is unavailable. Weekly fall waterfowl counts represent the only really good information available, those resulting from Illinois Natural History Survey flights.

A. WEATHER CONDITIONS

Weather records were not obtained for this station.

B. HABITAT CONDITIONS

1. Water - Food and Cover

Moist soil plant production was fair on this area but was not available to waterfowl in the fall because of dry conditions. High water in the spring made foods available and waterfowl used it intensively through the spring migration.

II. WILDLIFE

Total waterfowl use was down sharply from last year. Waterfowl use-days in 1973 totalled 1,463,000; 533,160 in 1974. The dike system, over the past few years has washed out in several places. This leaves the flooding or dewatering at the mercy of the Illinois River. It is doubtful that any type of dike system could be economically constructed that would stand up against the river floods.

NARRATIVE REPORT
1974

Chautauqua National Wildlife Refuge
Havana, Illinois

PERMANENT PERSONNEL

John E. Toll	Refuge Manager
Charles W. (Bill) Watts	Maintenanceman
Alice Clanin (part time)	Clerk-Stenographer

TEMPORARY PERSONNEL

Robert E. Karrick (6/23/74 - 8/23/74)	Laborer
Kenneth R. Walker (6/23/74 - 8/23/74)	Maintenanceman

United States Department of the Interior
Fish and Wildlife Service

Chautauqua National Wildlife Refuge
Rural Route 2
Havana, Illinois 62644

CHAUTAUQUA NATIONAL WILDLIFE REFUGE

HAVANA, ILLINOIS

I. GENERAL

A. Weather Conditions

Flood conditions carried over from spring into August. The remainder of 1973 calendar year was extremely dry.

Water started rising in late January from melting snow in the North and was kept in flood stage because of above normal spring rains through June. The cross dike was cut in several places and at one point, to the bottom of the dike.

B. Habitat Conditions

1. Water - Food - Cover

Water levels were at flood stage through the first part of July. It wasn't until late August that water levels got low enough to expose mudflats in the lower pool. Even at this late date, we estimated 145 acres of choice moist soil plants made up of chufa, love grass, pigweed, cupplant, rice cut grass and bidens grew on the exposed flats. This was the first time these flats had been exposed in over forty years.

Grainfields off the refuge had a minimum of waste because dry fall conditions allowed for an early harvest and extensive fall plowing.

Natural food production was above average in flood plains along the Illinois River valley.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

a. Ducks

The duck migration for the fall of 1973 and the spring of 1974 was normal for the Illinois River valley as a whole. Total duck use days for Chautauqua was sharply up, however, from 1,000,000 in FY 1973 to 3,000,000 in FY 1974. Most of this increase occurred in the fall and is attributable to the moist soil plant production and the ideal water condition (6" - 12") covering it.

Continued flood conditions in the spring and early summer destroyed about one-half of the early wood duck nesting attempts. Overall production was down from 500 to 325.

b. Geese

Snow geese and Canada geese found the new habitat in the lower pool to their liking. Snow use days were 90,000 in FY 1973 and 270,000 in FY 1974. Canada geese increased from 12,000 use days to 110,000.

c. Coots

Coots followed the increased use pattern followed by ducks and geese.

2. Other Water Birds

Nothing unusual to report.

3. Shorebirds

Without a doubt, the outstanding wildlife event at Chautauqua was the late summer/fall concentration of birds on mudflats of the lower pool. At one time, 200,000 shorebirds were estimated on the refuge. Birdwatchers came from

all over the state and a few from out of state to enjoy this spectacular sight. Shorebird use days totaled 1,200 in FY 1972; 137,000 in FY 1973 and 1,469,000 in FY 1974. See attached news release.

4. Doves

Normal numbers and reproduction.

B. Upland Game Birds

Quail and pheasant numbers and hatch seemed to be average for this year.

C. Big Game Animals

One doe and two fawns were seen this year. Tracks are not common.

D. Fur Animals, Predators, Rodents, and Other Mammals

There has been a definite increase in beaver over the past few years. Lodges are common all around the lake. Raccoon populations are down. Probably as a result of a distemper die off last year.

Other animals in this category seem to be in normal numbers with habitat conditions for them unchanged.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

No trends to report.

F. Other Birds

The avocet and buff-breasted sandpiper were added to the refuge bird list making a total of 247.

G. Fish

Loss of the ability to hold water in the lower pool resulted in water depths of less than one foot in the deepest part. There was some fish die off, mostly shad. The local fishermen felt the fish had followed the water out as it dropped.

In spite of the low waters in the summer, the following spring the trot line fishing for channel cat was excellent. In the upper pool many catches of small bass started to show up in the spring of 1974 - probably from last year's hatch during high waters.

H. Reptiles

Nothing to report.

I. Disease

None to report.

III. REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development

In April of 1973 the Biological Technician position was eliminated at this refuge. This reduction in force limited most of the following year's work to routine maintenance. Contracts were let and work completed for two sets of outhouses and insulation and siding of the manager's residence.

B. Plantings

1. Aquatic and Marsh Plants

None.

2. Trees and Shrubs

About 100 trees and shrubs were planted around the public use areas for wildlife cover and replacement for previously mowed grass areas.

3. Upland Herbaceous Plants

None.

4. Cultivated Crops

None.

C. Collections and Receipts

None.

D. Control of Vegetation

Roadside mowing only.

E. Planned Burning

None.

F. Fires

None.

IV. RESOURCE MANAGEMENT

A. Grazing

None.

B. Haying

None.

C. Fur Harvest

None.

D. Timber Removal

None.

E. Commercial Fishing

Due to lack of interest and administrative costs, commercial fishing was eliminated this year. There are no plans to pick up this program in the forseeable future.

F. Other Uses

The local tavern has a special use permit ($10.00/year) that covers a portion of the building that extends onto the refuge. It may or may not be significant that the portion on the refuge is the restroom.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Progress Report

1. Rountree Natural Area

An environmental assessment was completed for a proposed road that would go through the Rountree Research Natural Area. It will be used to respond to an Environmental Impact Statement being developed by the State Highway Department.

2. Heavy Metal Study

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VI. PUBLIC RELATIONS

A. Recreational Uses

Recreational use at Chautauqua has steadily increased over the past several years. Visits for FY 1974 totaled 105,000. This is up from FY 1973 total of 90,000. Fishing makes up the largest public use accounting for about 55% with wildlife observation being second with about 40%.

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C. Refuge Participation

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Maintenanceman Watts is vice-president of the Mason County Fire Fighters Association, chaplain of the VFW, and vice-president of the Havana Firemen's Association.

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Hunting on private land near the refuge was considered fair for the year.

E. Violations

Lack of personnel has drastically curtailed our enforcement effort. Two individuals were picked up in the public hunting area during the teal season with four wood ducks. They forfeited federal bonds of $300.00.

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Safety meetings were held at the Quincy office on a regular basis. This station has gone nearly 8,000 days without a lost time accident.

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The E. E. efforts of the past two years have resulted in an ever increasing involvement by the refuge. However, with the decrease in manpower, the E.E. program was for the most part phased out by the end of FY 1974.

The following is a listing of the accomplishments of FY 1974:

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University and representatives from Office of the Superintendent of Public Instruction and the U. S. Fish and Wildlife Service to determine how best to develop an E. E. program. After several meetings, it was determined to develop a Pilot E. E. Program in one of the local school districts. Toll and Dr. Kellogg conducted a survey of several schools in the area and selected the Havana School District because of their high interest in the program. A committee was formed that was composed of representatives from WIU, O.S.P.I., U. S. Fish and Wildlife Service, administration of the Havana School District, teaching staff of the Havana School District, Izaak Walton League, Jaycees, Havana Beautiful, and a school board member. This committee met on a monthly basis to discuss and develop the program for Havana. At the end of 1973, over half of the teachers in the elementary Havana school system had completed 40 hours or more of training in E. E. techniques. The Havana Pilot Program has been so successful that the State Director of Environmental Education has requested funds from the Institute for Environmental Quality for documentation that can be used to develop other E. E. programs in Illinois.

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MEREDOSIA ISLAND NATIONAL WILDLIFE REFUGE

MEREDOSIA, ILLINOIS

I. GENERAL

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The 1,850 acres is made up of 1,250 acres of bottomland timber, 300 acres of farmland and 300 acres of marsh and water.

An effective moist soil management program has been developed by the club and it is our intention to continue that program pretty much the way it has been.

The long range plans for the area include the purchase of additional land to bring the total acres to approximately 6,000. When this is completed, a management program will be started. At present time, because of lack of funds, manpower and poor access, no public use is permitted.

Because we are operating Meredosia on a limited basis, only a few items listed in the Narrative outline will have enough information to report.

A. Weather Conditions

Flood conditions remained in July and into August. The latter part of August, September and October were extremely dry. Flood conditions started again in the latter part of January and continued through the report period.

B. Habitat Conditions

1. Water - Food - Cover

High water levels remained until August preventing a drawdown of the marsh areas on the refuge. Even with this late drawdown, there was some moist soil plant growth in the fall. The moist soil plants were of the same varieties that grew in Chautauqua except there was an abundance of marsh smartweed. The marsh smartweed did not have but very few seedheads--not an uncommon occurrence according to conversation with Vandeventer.

What little moist soil plant food did grow remained unavailable to the waterfowl because we had no way to flood the marsh. The pumping system that came with the refuge was inoperable.

In the spring of 1974, we had high water conditions flooding the 300 acres of farmland that had produced a good crop of annual weeds such as smartweed, millet, etc. Spring migrating ducks made excellent use of this volunteer food.

II. WILDLIFE

A. Migratory Birds

1. Waterfowl

a. Ducks

Duck use day objectives for Meredosia are established at 2,053,000. This is based on the 1965-69 average figures. We were far short of this objective during our first year's operation of the refuge with total use days of 562,000 or about one-half of our goal. Our downfall was the lack of water to flood the marshes in the fall. We did have water

in the spring resulting in almost twice as many use days as the fall. This is reverse of the normal situation.

b. Geese

Our objective for geese at Meredosia is to hold a population just high enough so that wildlife observers have ample opportunity to view them. It seems that we can do this without any special management since geese were present in every month they could be expected to be.

2. Other Waterbirds

Several species of waterbirds are common at Meredosia in the small marshes and the edge of the large lake. Because of our lack of manpower plus the difficulty of getting to the area much of the time, we feel our reported numbers are shaky at best. For that reason, we will not attempt to discuss trends.

3. Shorebirds

Most of the species that occur at Chautauqua are found at Meredosia but in much smaller numbers.

B. Upland Game Birds

Probably because of frequent flooding, neither quail or pheasant were observed on the island.

C. Big Game Animals

Deer are common on the refuge. However, frequent and prolonged flooding push them to higher ground often so overpopulation will probably never be a problem.

III. REFUGE DEVELOPMENT & MAINTENANCE

A. Physical Development

Considerable time was spent locating the boundries and posting the area. After waters receded in July, the caretaker's residence was reconditioned. Water levels had reached three feet above the floor. Floor coverings were replaced and the interior repainted.

CAMERON UNIT

I. GENERAL

The Cameron Unit is 70 miles from headquarters. Reduced money and manpower has made it impossible to do more than just check the area a few times a year. Therefore, detailed information is unavailable. Weekly fall waterfowl counts are the only really good information we have.

A. Weather Conditions

Weather records were not obtained for this station.

B. Habitat Conditions

1. Water - Food - Cover

Moist soil plant production was fair on this area but was not available to the waterfowl in the fall because of dry conditions. High water in the spring made all of it available and waterfowl used it intensively through the spring migration.

II. WILDLIFE

Total waterfowl use was down sharply from last year. Waterfowl use days in 1973 - 1,463,000; 1974 - 533,160. The dike system that has been built over the past few years is washed out in several places. This leaves the flooding or dewatering at the mercy of the river. It's doubtful that any type of dike system could be economically constructed that would stand up against the river floods.

NATIONAL WILDLIFE REFUGE SYSTEM

REPORT OF ECONOMIC OUTPUTS - FY 74

(IN DOLLARS)

CHAUTAUQUA

03-3531-61-CTC

TYPE OF BENEFIT	JUL-SEP 73	OCT-DEC 73	JAN-MAR 74	APR-JUN 74	FY TOTAL
REFUGE RECEIPTS					
OTHER RECEIPTS	0.00	0.00	0.00	10.00	10.00
TOTAL	0.00	0.00	0.00	10.00	10.00

NATIONAL WILDLIFE REFUGE SYSTEM
LAND USE INVENTORY REPORT
FY - 74

CHAUTAUQUA
03-3531-61-CTQ

LAND CLASSIFICATION	ACREAGE
I. DETAILED CLASSIFICATIONS	
WETLAND TYPES	
INLAND FRESH AREAS	
SEASONLY FLOOD BASIN/FLAT	919.0
OPEN FRESH WATER	3,405.0
UPLAND TYPES	
FORESTLANDS	
NON-COMMERCIAL FORESTS	135.0
TOTAL ACRES	4,459.0
II. SUMMARY CLASSIFICATIONS	
INLAND FRESH AREAS	4,324.0
WETLAND TYPES	4,324.0
FORESTLANDS	135.0
UPLAND TYPES	135.0

NATIONAL WILDLIFE REFUGE SYSTEM
REPORT OF MISCELLANEOUS OUTPUTS
FY-74

MERRIMACK
03-3531-63-MDA

TYPE OF OUTPUTS	UNITS	FY TOTAL
PROFESSIONAL SERVICES		
REFUGE ORIENT, PUBLISHD BY NON-REFUGE PERSNL	EACH	1
MISCELLANEOUS WILDLIFE OUTPUTS		
WILDLIFE DIVERSITY	NO. SPECS	273

NATIONAL WILDLIFE REFUGE SYSTEM
PUBLIC USE REPORT

MEREDOSIA
03-3531-63-MDA

VISITS BY MONTH

ACTIVITY NAME	JUL-73	AUG-73	SEP-73	OCT-73	NOV-73	DEC-73	JAN-74	FEB-74	MAR-74	APR-74	MAY-74	JUN-74	12 MONTH TOTAL
TOTAL WILDLIFE ORIENTED													
TOTAL NON-WILDLIFE ORIENTED													
TOTAL PUBLIC USE													
NO. VISITS TO REFUGE													

NATIONAL WILDLIFE REFUGE SYSTEM
LAND USE INVENTORY REPORT
FY - 74

MERRIMACK
03-3531-63-MDA

LAND CLASSIFICATION	ACREAGE
I. DETAILED CLASSIFICATIONS	
WETLAND TYPES	
INLAND FRESH AREAS	
SEASONLY FLOOD BASIN/FLAT	1,550.0
UPLAND TYPES	
CROPLANDS	
NONIRR-GRN BROWSE, PERANL	300.0
TOTAL ACRES	1,850.0
II. SUMMARY CLASSIFICATIONS	
INLAND FRESH AREAS	1,550.0
WETLAND TYPES	1,550.0
CROPLANDS	300.0
UPLAND TYPES	300.0

NATIONAL WILDLIFE REFUGE SYSTEM
REPORT OF MISCELLANEOUS OUTPUTS
FY-74

CAMERON UNIT
03-3531-62-CMU

TYPE OF OUTPUTS	UNITS	FY TOTAL
MISCELLANEOUS WILDLIFE OUTPUTS		
WILDLIFE DIVERSITY	NO. SPECS	273

NATIONAL WILDLIFE REFUGE SYSTEM
PUBLIC USE REPORT

ACT HRS BY MONTH

CAMERON UNIT
03-3531-62-CMU

ACTIVITY NAME	JUL-73	AUG-73	SEP-73	OCT-73	NOV-73	DEC-73	JAN-74	FEB-74	MAR-74	APR-74	MAY-74	JUN-74	12 MONTH TOTAL
TOTAL WILDLIFE ORIENTED													
TOTAL NON-WILDLIFE ORIENTED													
TOTAL PUBLIC USE													
NO. VISITS TO REFUGE													

NATIONAL WILDLIFE REFUGE SYSTEM
LAND USE INVENTORY REPORT
FY - 74

CAMERON UNIT
03-3531-62-CMU

LAND CLASSIFICATION	ACREAGE
I. DETAILED-CLASSIFICATIONS	
WETLAND TYPES	
INLAND FRESH AREAS	
SEASONLY FLOOD BASIN/FLAT	602.0
UPLAND TYPES	
FORESTLANDS	
NON-COMMERCIAL FORESTS	37.0
TOTAL ACRES	639.0
II. SUMMARY CLASSIFICATIONS	
INLAND FRESH AREAS	602.0
WETLAND TYPES	602.0
FORESTLANDS	37.0
UPLAND TYPES	37.0